

Exporting *Curcuma longa* (turmeric) to Europe

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Curcuma longa (turmeric) is in high demand on the European market for health products. Numerous studies have been conducted on the anti-inflammatory properties and antioxidant activities of *Curcuma longa*. In Europe the capsules/tablets containing powder and extracts are marketed to support the immune system, joint and digestive health. *Curcuma longa*'s popularity has also sparked research into other health areas.

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1. Product Description

Curcuma longa (also known as turmeric) is a plant that is native to southern Asia, where it is widely cultivated. The plant is now also cultivated in the Americas. The main producers of *Curcuma longa* include the following countries.

- India
- Pakistan
- China
- Haiti
- Jamaica
- Peru
- Taiwan
- Thailand
- Indonesia
- Madagascar

The roots and rhizomes (underground stems of the plant from which the roots grow) of *Curcuma longa* are used in the following areas.

- Food (as a spice and as food additive for colour and flavour)
- Cosmetics
- Health products

Curcuma longa is available in several product forms on the European market (see Table 1). Of the products in Table 1, food-grade powder, powder capsules and high-potency tablets are the most common on the European market. Fresh turmeric rhizomes are also on the market for use in cooking.

Rhizomes are collected, boiled, dried and ground to make a yellow crude powder. This powder is also used to create an extract, which can be standardised regarding curcumin content, so that there is a specific percentage of the active component curcumin (usually 93-95%).

Table 1: Common *Curcuma longa* products on the European market

	Crude powder	Food-grade powder	Powder capsules	Pharmaceutical-grade capsules (often sold as herbal medicinal product)	Capsules/tablets containing extract	High-potency tablets: standardised curcumin content (for example 95%)
Processing needed for the product	NA	- Grinding - Packaging	- Grinding - Encapsulating - Packaging	- Complying with pharmacopoeia - Grinding - Encapsulating - Packaging	- Extraction - Encapsulating or tableting - Packaging	- Extraction - Standardising extract - Tableting - Packaging

Health applications of *Curcuma longa*

The roots of *Curcuma longa* contain various active components. The most researched component is [curcumin](#). Research shows that curcumin has anti-inflammatory properties and a high level of antioxidant activity. Curcumin can also be produced synthetically (see section on competition).

The content of curcumin in the roots differs between [varieties of *Curcuma longa*](#). On average, roots contain 3% curcumin. The [highest curcumin content reported](#) was 9.3% in roots cultivated in Pakistan.

In European health products, *Curcuma longa* is mainly used for:

- joint health
- immune support
- digestive health.

This study focuses on these main uses for *Curcuma longa*.

In addition, the popularity of *Curcuma longa* has also led to research on its uses in:

- liver support
- cognition
- mood, mental well-being and work-related stress
- heart health.

Curcuma longa can be used in both food supplements and herbal medicinal products (see Table 2 below). For use in herbal medicinal products, the ingredient's use is limited to digestive health.

Several European countries (or groups of countries, such as Belgium, France and Italy in the case of BELFRIT) have established positive lists of species which are allowed to be used in food supplements. You can find these in the table below. Please note that species allowed for use in food are not necessarily allowed for supplements (e.g. in concentrated form).

The use of species in medicine is described in Pharmacopoeia monographs. A pharmacopoeia is a reference work identifying and specifying medicines. The descriptions identifying medicines are called monographs. You can find these references in the table below.

Table 2: Use and classification of *Curcuma longa* in health products

Food supplements	The rhizome of <i>Curcuma longa</i> is allowed in food supplements. It listed in BELFRIT and German national positive lists. The essential oil of <i>Curcuma longa</i> is also listed in BELFRIT.
Herbal medicinal products	<i>Curcuma longa</i> is allowed on the European market as listed in European Pharmacopoeia monograph #2543: <i>Curcuma longae</i> rhizome. Its use in herbal medicinal products is described in the Community Herbal Monograph on Curcuma longa rhizoma For more information on use outside Europe, see: ESCOP Monographs 2nd Edition on Curcumae longae rhizome WHO monograph Rhizoma Curcumae Longae
Chemical Administration Service number	84775-52-0
European Community Number	283-881-2
Harmonised System code for trade in <i>Curcuma longa</i> :	0910.30: 'Turmeric (curcuma)', as raw material (root/powder). The extract of <i>Curcuma longa</i> is traded under: 1302.19: 'other vegetable saps and extracts'

Source: [European Chemicals Agency](#)

Tips:

- Determine the concentration of curcumin in your *Curcuma longa*. Work together with a local university to test your product.
- See the [website of Turmeric World](#) for more information on composition, botany and uses of *Curcuma longa*.

2. Which market segments can be targeted?

Food supplements

In Europe, *Curcuma longa* rhizomes are allowed in food supplements (Table 2). See Table 1 for an overview of the most common *Curcuma longa* products on the market. For product examples, check the websites of

companies such as [Holland & Barrett](#), [Neal's Yard Remedies](#) and [Mount Natural](#).

The essential oil is also allowed in the BELFRIT countries (Belgium, France and Italy). Based on this list, health authorities in other European countries might allow use of the essential oil as well.

Although the main market for health products in Europe is based on *Curcuma longa* products, other *Curcuma* species are also allowed in food supplements:

- *Curcuma xanthorrhiza* rhizome
- *Curcuma zedoaria* rhizome.

The Italian positive list for food supplements ingredients lists similar uses for these species as for *Curcuma longa*. These include the following.

Main uses in health products:

- for digestive health
- for joint health
- as an antioxidant.

Additional uses in health products:

- for liver health
- for menstrual cycle disorders.

Producers of food supplements may not make medicinal claims. The following are examples of claims used in Europe for supplements containing *Curcuma longa*.

- '... to help overall wellbeing'
- '... to help maintain joint health'
- 'Supports digestive health'
- 'Turmeric root ... contains the active constituent curcumin'
- 'Turmeric and ginger may help to manage inflammatory responses'

Tips:

- Talk to European health authorities together with your buyers to find out if your essential oil is allowed for use in countries other than Belgium, France and Italy.
- Discuss with your buyer whether they require food or pharmaceutical grade *Curcuma longa*.
- See the section on competition for more information on competing *Curcuma* species on the European market.
- Do not make medicinal claims if you are targeting buyers working in the food supplements industry.

Herbal medicinal products

Several herbal preparations of *Curcuma longa* can be used in herbal medicinal products. This is according to its monographs for the European market (see Table 2), including the following.

- Powdered *Curcuma longa* herbal substance
- Tincture (extraction solvent ethanol)
- Dry extract (extraction solvent ethanol)

In herbal medicinal products, claims for *Curcuma longa* are specified by the [Community Herbal Monograph](#). An example of a claim: '... increase[s] the bile flow for the relief of symptoms of indigestion (sensation of fullness, flatulence and slow digestion)'.

If you want to target this market segment, you must comply with strict European legal requirements for the herbal medical industry (see the section on buyer requirements below).

Monographs list standards on the production of ingredients for herbal medicinal products and provide information on the claims that may be made for these ingredients. They also include scientific information on uses, effects and counter-indications. You can find additional monographs for *Curcuma longa* for non-European markets in Table 2.

The European Medicines Agency has also developed a monograph for *Curcuma xanthorrhiza* rhizome. This species can be used in herbal medicines with the claim of: '[for] symptomatic treatment of digestive disturbances, such as feelings of fullness, slow digestion and flatulence'. *Curcuma xanthorrhiza* rhizome can therefore compete with *Curcuma longa*.

Tips:

- See the monographs listed in Table 2 for more information on production standards, use and effects of *Curcuma longa*.
- Carefully consider whether you can meet the high legislative and buyer requirements for herbal medicinal products. Also consider whether you can compete with current suppliers. You can only find buyers if your offer is sufficiently better than that of existing suppliers (in terms of price, delivery and services).
- See the [WHO monograph for *Rhizoma Curcumae Longae*](#) for more information on additional indications for markets outside Europe.

3. What makes Europe an interesting market for *Curcuma longa*?

The European curcumin market is growing

The growth of the global curcumin market (one of the active compounds in *Curcuma longa*) is driven by its use in herbal food supplements. This product group also makes up the largest share of the global curcumin market.

The global market for curcumin is expected to [grow by 12% annually from 2015 to 2022](#). In 2022, this market is expected to reach 1.3 thousand tonnes at \$84 million (€74 million). In another study expectations are even higher, stating that the European market will grow by [more than 17% annually](#), from 2015 to 2022. Europe is the second largest global market for curcumin, after North America.

Source: Eurostat, 2016

Because *Curcuma longa* does not grow in Europe, demand must be met by imports. Figure 1 gives an overview of leading European importers of *Curcuma longa*. Spain's imports increased vastly from 2014 to 2015. European re-exporters contributed more to this recent growth than developing country exporters.

From 2011 to 2015, imports increased by 7.5% annually. In 2015 imports reached 16.5 thousand tonnes at €33 million. Note that the largest share of this is used in food products.

Of the total European imports in 2015, almost 75% originated in developing countries. The following countries have the highest direct imports from developing countries.

- the United Kingdom (30% of 2015 European imports from developing countries)
- the Netherlands (21%)
- Germany (19%)

- France (8.9%)
- Spain (5.8%)

In 2015, these countries accounted for 85% of European imports from developing countries.

Of the total imports about 25% are re-exports from European sources. The countries that have highest direct imports from developing countries also are the largest re-exporters.

Smaller, but fast-growing importers of *Curcuma longa* from 2011 to 2015 include the following countries.

- Italy (+29% annually)
- Austria (+13%)
- Ireland (+28%)
- Hungary (35%)

These countries mainly imported from European re-exporters.

India is the main supplier of *Curcuma longa*. In 2015, this country accounted for 88% of supplies from developing countries. The Indian Spices Board lists the United Kingdom and Germany as the [main European importers of Indian *Curcuma longa*](#).

Other developing country suppliers include the following.

- Peru
- Indonesia
- Madagascar

Tips:

- For more statistics on *Curcuma longa*, check online sources such as [ITC Trademap](#) or the [Indian Spices Board](#).
- Target leading Western European importers of *Curcuma longa* from developing countries. The most interesting are the United Kingdom, the Netherlands, Germany and France.
- Also consider targeting smaller, fast-growing importers of *Curcuma longa*. This includes Italy, Austria, Ireland and Hungary. Although they currently import lower quantities, they may be interesting for small exporters.

Strong demand for *Curcuma longa* due to a changing perception of health

A changing consumer understanding of what it means to be healthy is driving consumption of *Curcuma longa*. Instead of the absence of illness, consumers use health products to prevent diseases and feel good, for example by adding supplements to their regular diet.

European consumers often use immune support and digestive health products to improve their overall health and to prevent illnesses. Moreover, they use digestive health products for health issues related to poor diet. This opens up opportunities for *Curcuma longa* supplements. Use for these health issues is based on *Curcuma's* antioxidant properties and its traditional use to relieve symptoms of indigestion.

The European food supplements market is expected to [grow by 9.5% from 2015 to 2020](#).

Demand for immune health supplements

In this market, supplements that support immune health are very popular. In 2013, these products had a [high market share of total food supplements](#) in the following countries.

- France (14%)
- Italy (12%)
- Germany (9%)
- the United Kingdom (7%)

Food supplements aimed at general health are often related to maintaining a robust immune system. In Western Europe, these have a particularly high market share in the following countries.

- Germany (20%)
- the United Kingdom (14%)
- Italy (12%)

Demand for digestive health supplements

Sales of digestive health products grew by 2% annually between 2011 and 2015. The main European markets for these products are Germany, Italy and Poland.

Source: AESGP, 2016

* Sales at consumer price level unless otherwise specified. MSP: Manufacturer Selling Price. WP: Wholesaler Price.

Tips:

- Are you targeting the food supplements market? Do not make any medicinal claims for your *Curcuma longa* in your product documentation or marketing materials.
- See our study on [superfoods in Europe](#) for more information on the market and trends. Be careful on how you frame the superfood status of your *Curcuma longa* in your marketing materials. The term 'superfood' is not an authorised health claim in Europe. European companies may only use this term on their label if it is part of their brand name.
- Refer to digestive health and immune support properties of *Curcuma longa* in your product documentation.
- Support claims with data from trustworthy sources. Look into official monographs, especially for digestive health. A great deal of information is available online. See the sources below.
- Check databases such as [Herbmed](#) to identify research on traditional use, clinical trials on the evaluation of safety and effectiveness of herbal formulations on people, and patents for other information.
- Access scientific resources; for example use [Elsevier Science Direct](#) (not for free), [Google Scholar](#) or [Examine.com](#).
- Consider becoming a member of the [Society for Medicinal Plant and Natural Product Research \(GA\)](#) to access their research.

Growing need for joint health products

Although some European consumers are adopting healthier lifestyles, Europe still has an increasingly overweight and inactive population. The European population is also ageing. As a result, the overall population has a higher risk of health conditions involving joints. This offers opportunities for exporters of *Curcuma longa*, with the anti-inflammatory properties of its active compound curcumin. Consumers are looking for products that work and that they can take long-term.

Around [22% of Europe's population](#) is reported to be under long-term treatment for muscle, bone and joint conditions (such as rheumatoid arthritis). Countries with a relatively high incidence include the following.

- Austria (38%)
- Hungary (36%)
- Slovakia (36%)
- Spain (35%)

The global market for bone and joint health supplements is [expected to reach \\$9 billion](#) (€8 billion) in 2017. In Europe, ingredients related to bone and joint health are more frequently consumed in functional foods and beverages than in food supplements, for example in margarines or milk.

In 2013, the [market share of joint health food supplements](#) was highest in the United Kingdom (16% of a total market of €538 million) and Belgium (19% of €188 million).

Tips:

- Communicate how the long-term use of *Curcuma longa* will not negatively impact health. Substantiate the product safety with scientific research.
- Look for credible literature sources on the anti-inflammatory properties of curcumin and their health benefits in joint conditions. Use these references in your product documentation and marketing materials.
- Consider targeting countries with a high incidence of joint health issues or with high sales of joint health products.
- See our study on [trends for natural ingredients for health products](#) for more trends and tips, including information on Europe's ageing population.

Interest in organic certified *Curcuma longa*

European demand for organically produced food supplements continues to grow. However, the total market share for organic *Curcuma longa* is still small, according to industry sources.

Organic certification is most common for *Curcuma longa* powder, because companies can certify the final product. For capsules/tablets containing *Curcuma longa* extracts, food supplement manufacturers do not certify the entire product very often. Capsules/tablets usually contain a small amount of *Curcuma longa* extracts and a much higher one of fillers. These fillers are usually do not have organic certification.

Tips:

- Check whether there is sufficient demand for an organic version of your *Curcuma longa*. Talk to your (potential) buyers to see whether they are interested in certified *Curcuma longa*. Look for companies that trade in certified *Curcuma longa* online or at trade fairs, for example among exhibitors at [Biofach](#), an organic trade fair, or look for organic importers on the [website of the International Trade Centre](#).
- If your *Curcuma longa* does not have organic certification, promote the sustainable aspects of your production process. Buyers might ask you to support your claims with certification or documentation on your sourcing practices and/or your corporate social responsibility (CSR) practices.
- See our study on [buyer requirements for natural ingredients for health products](#) for more information on certification standards.

4. What are the requirements *Curcuma longa* must comply with to be allowed on the European market?

You can only supply European *Curcuma longa* buyers if you comply with [buyer requirements for natural ingredients for health products](#) (see below). Which specific requirements you need to comply with depends on

whether your *Curcuma longa* is used in herbal medicinal products or in food supplements.

Regardless of the segment it is used in, your *Curcuma longa* needs to be sustainably sourced. However, you do not necessarily need to certify this sustainability.

Specific requirements for herbal medicinal products

If you target the European herbal medicinal products market with your *Curcuma longa*, you must comply with the following legal requirements:

- relevant [European legislation](#) (Directive 2004/24/EC), the simplified regime for traditional herbal medicinal products
- detailed quality, documentation, labelling, packaging, certification and traceability standards as established in [the rules governing medicinal products in the European Union](#)
- [marketing authorisation](#) of medicinal products to be sold in the EU market
- [good agricultural and collection practices \(GACP\)](#) for raw plant materials
- good manufacturing practices (GMP) for [extracts](#) or [active substances used as starting materials](#)
- monographs as outlined in the product description above.

Requirements specifically for food supplements

If you target the European food supplements market with your *Curcuma longa*, you must comply with the following legal requirements:

- [European legislation for food supplements](#) (composition and labelling requirements)
- [general food law](#)
- food safety standards (see below).

Food safety requirements cover:

- [maximum residue levels](#)
- [contaminants in food](#) and [microbiological contamination of food](#) (contamination with ochratoxins, aflatoxins and Salmonella are the main issues for *Curcuma longa* entering Europe). For more information, have a look at the [Rapid Alert System for Food and Feed](#), searching for results for turmeric
- general [foodstuffs hygiene](#) (HACCP: Hazard Analysis Critical Control Point)
- [extraction solvents](#)
- [food irradiation](#)
- [traceability](#).

Tips:

- [See our study about buyer requirements for natural ingredients for health products for more information.](#)

Additional requirements

Many European buyers have additional quality requirements. These can go beyond legislation and standards. They are outlined in buyer specifications. Examples are requirements related to:

- active ingredient content
- moisture content
- contaminants
- residues.

To show that you meet the specifications of buyers, you need to develop well-structured company and product information, including detailed technical data sheets.

Tip:

- See our [tips for doing business](#) for more information about providing structured information.

Requirements for niche markets

If you want to enter niche markets, you will need to meet standards and requirements for social and environmental sustainability. These include those regarding the following:

- organic production
- verification and/or certification of sustainable production (including [FairWild](#), [FLO Fairtrade](#), [FairForLife](#), [UNCTAD BioTrade Initiative](#), [Union for Ethical BioTrade](#))
- supplier codes of conduct
- [ISO 26000](#) on social responsibility.

European food industries increasingly demand compliance with quality and food safety management. This includes the following.

- [ISO 9001:2008](#) (required for health ingredients)
- [International Featured Standards](#) (IFS) related to food (e.g. IFS Food, IFS Global Markets Food)
- [ISO 22000](#) (food safety)
- [ISO 31000](#) (risk management)

Quality requirements for *Curcuma longa*

The main quality requirements for *Curcuma longa* concern its curcumin content and antioxidant activity.

European buyers value high curcumin content in extracts, as this compound is linked to the anti-inflammatory activity of *Curcuma longa*.

The percentage of curcumin in extracts ranges widely, beginning at 2% in the Kadappa variety from India, through 6% in the Indian Alleppey variety, all the way up to 9.3% in Roma and Suroma varieties from Pakistan.

Antioxidant activity can be estimated based on an extract's content of [phenols and flavonoids](#).

Research suggests that steam cooking of *Curcuma longa* can improve the antioxidant activity of the extract.

If you want to target the herbal medicine segment, you need to comply with the monograph in the European Pharmacopoeia. This monograph sets specifications for the ingredient for use in medicinal products.

Tips:

- Work together with a local university to test your *Curcuma longa*. A local university can help determine the curcumin content and that of other curcuminoids, as well as the phenol and flavonoid content of your extract. The chemical profile needs to be included in your product documentation.
- Standardise product quality and minimise significant variations in it, in particular by monitoring harvest and post-harvest practices and minimising the time between harvest and processing. Developing standard operating procedures and training farm and processing staff is vital, in particular if you work with smallholders that supply you with raw materials. Use incentives to ensure that they follow your specifications on harvesting and post-harvest processes.
- Always match activities such as standardisation to the requirements of your buyer.
- Keep your facilities, storage rooms and equipment clean.
- Do not adulterate your product, for example with synthetic curcumin. Such practices hurt your

reputation. Importers regularly analyse products for adulteration. They can easily distinguish synthetic curcumin from natural curcumin by analysing the components of your product.

Labelling requirements

If you want to export your *Curcuma longa* to Europe, you will need to comply with the following labelling requirements.

- Set up a registration system for individual batches of your *Curcuma longa*, whether they are blends or not. Mark them accordingly to ensure traceability.
- Label your products in English, unless your buyer wants you to use a different language.

Your labels must include:

- product name/INCI name
- batch code
- place of origin
- name and address of exporter
- date of manufacture
- best before date
- net weight
- recommended storage conditions.

If you supply organic *Curcuma longa*, your label needs to include the name/code of the inspection body and certification number.

You also need to give your buyer the following documentation.

- Technical Data Sheet (TDS) (check this example for [curcumin powdered extract](#))
- CAS number
- Certificates of Analysis (COA) (check examples of *Curcuma longa* [dried root](#) and [tincture](#))
- Safety Data Sheet (SDS) (see these examples of [turmeric powder](#), *Curcuma longa* [extract](#), *Curcuma longa* [essential oil](#) and [curcumin](#))
- GMO certificate (if requested)
- Certificate of origin
- Product information sheet

Curcuma longa extract and essential oil are classified as hazardous. You must include hazard symbols on your label if you export these products. See the example below.

You also need to include risk and safety phrases in your Safety Data Sheet, see the examples above. These phrases show what the main risks and hazards are and how you need to prevent them.

Also include for the extract:

- risk phrases R36 and R40
- safety phrases S22, S36/37, S46.

And for the oil:

- risk phrases R43, R52/53, R65
- safety phrases S24, S37, S62.

Tips:

- See the European Union [Directive 2001/59/EC](#) for more information about phrases used to describe risk and safety matters.
- Check the [database of the European Chemicals Agency](#) for more information on the hazard classification for *Curcuma longa* and curcumin extracts.
- See our workbook for preparing a technical dossier and technical documents for a cosmetic ingredient. Several documentation requirements, such as Technical and Safety Data Sheets, will be similar for health ingredients.

Packaging requirements

Packaging requirements may differ per buyer and *Curcuma longa* product. However, there are some general requirements which you must take into account which are encompassed in standards. See the tips below.

Tips:

- Always ask your buyer for their specific packaging requirements.
- Re-use or recycle packaging materials; for example, use containers made from recyclable material (e.g. metal).
- Use containers of a material that does not react with extract components (e.g. lacquered or lined steel, stainless steel, aluminium).
- Clean and dry the containers before filling them with *Curcuma longa*.
- Store containers in a dry, cool place to prevent quality deterioration.
- If you are offering *Curcuma longa* with organic certification, physically separate it from *Curcuma longa* that is not certified.

5. What competition will you face on the European *Curcuma longa* market?

Market entry barriers

There is a strong demand for *Curcuma longa* in Europe. But competition is fierce, especially from suppliers from India. Therefore, scale of production and processing is important to enter the market.

If you are a small farmer of raw materials you need to engage with *Curcuma longa* processors at a relatively close distance to be able to ensure product quality. Vertically integrated companies can combine cultivation, processing and marketing. For example, the Indian company [Sabinsa](#) is involved in research, manufacturing and standardising extracts, as well as marketing and export. Integrated companies also operate on a larger scale and work with outgrowers and/or have plantations to grow the product.

Powders vs. extracts

Market entry barriers depend on the level of processing you do.

If you produce *Curcuma longa* powder, market entry barriers are relatively low. You can also expect more new entrants at this level.

However, if you produce *Curcuma longa* extracts, especially with a standardised curcumin content, market entry barriers increase. You need more advanced technology, skilled personnel to work with this technology and you will need to manage quality. This means that competition from new entrants decreases substantially once you

have mastered this level of processing and are able to produce an extract that complies with legal and buyer requirements.

Food supplements vs. herbal medicinal products

Market entry barriers also depend on the segment your *Curcuma longa* is used in food products (supplements) or herbal medicinal products.

Competition from new entrants is low if you produce ingredients for herbal medicinal products. Once European buyers have established a supply chain, they are less likely to switch to new suppliers. This reduces opportunities for new entrants.

For European buyers the costs of changing established supply contracts, and (perceived) risks of changing suppliers often do not weigh up against the reduction in supply costs. Costs can be especially high in terms of producing a new Common Technical Document (CTD).

For food supplements, you can expect more competition from new entrants. Supplier-buyer relationships are less stable than in herbal medicinal products. Costs of compliance with legal and buyer requirements for food supplements are relatively low when compared to herbal medicinal products. Manufacturers will switch more easily to new suppliers when demand is high and they need to find new sources of *Curcuma longa*.

Tips:

- Conduct a thorough feasibility study before engaging in *Curcuma longa* cultivation and in particular in further processing. Look into your returns on investment and your financial and human resource capacities to produce according to international buyer requirements.
- Diversify your product portfolio to reduce risks, for example with ingredients used in herbal medicinal products.
- If you can only cultivate on a small scale, engage with local processors to sell your rhizomes or cooperate with other growers to share the costs of investment in processing equipment.

What are substitute products for *Curcuma longa*?

Substitutions between *Curcuma* species

In terms of their use in health products, *Curcuma longa* can be substituted by two other *Curcuma* species: *Curcuma zeodoaria* and *Curcuma xanthorrhiza*. All three are permitted in food supplements. *Curcuma xanthorrhiza* is also allowed in herbal medicinal products, with the same claim as *Curcuma longa*.

In practice, substitution with these species is limited, especially for food supplements. Most products on the European market are based on *Curcuma longa*. This is the species that has been the subject of a wide and expanding list of studies and which has been given superfood status in marketing campaigns.

At the same time, natural curcumin competes with synthetic curcumin. This synthetic version is much cheaper than natural curcumin. There have been many incidents where [synthetic curcumins were sold as natural curcumin](#). Buyers closely monitor incoming batches.

Substitute products for *Curcuma longa* used for digestive health

Most alternatives to herbal food supplements for digestive health are natural, non-botanical supplements.

Major products are supplements that contain dietary fibres, probiotics and prebiotics and natural alternatives for digestive enzymes (which can be obtained from fruits such as papaya or pineapple). For examples, check the

[website of Holland & Barrett](#) (a retailer from the United Kingdom).

In addition to these non-botanical supplements, several plants are also used for digestive health. These are used in both food supplements and herbal medicinal products. The most commonly used plants include the following.

- Peppermint (*Mentha piperita*)
- Roman chamomile (*Chamaemelum nobile*)
- Green tea (*Camellia sinensis*)
- Ginger (*Zingiber officinale*)
- Boldo leaf (*Peumus boldus*)
- Fennel (*Foeniculum vulgare*)
- Black psyllium (*Plantago psyllium/ovata*)
- Senna (*Senna alexandrina*)
- Milk thistle (*Silybum marianum*)

European consumers want products that have proven benefits, with claims that show that they work. *Curcuma longa* has a competitive advantage over species only allowed in food supplements. European manufacturers can make medicinal claims for digestive health regarding *Curcuma longa* products, as these are described in monographs. Such claims are not allowed for food supplements.

Substitute products for *Curcuma longa* used for joint health

Most alternatives to herbal food supplements for joint health are natural, non-botanical supplements. Major products are supplements that contain glucosamine and chondroitin. For examples, check the [website of Holland & Barrett](#).

Since the European markets for supplements that contain glucosamine and chondroitin are reaching maturity, companies are interested in alternative ingredients that have more potential for growth.

Other natural alternatives include:

- botanical products (such as seaweed and pine bark extracts)
- non-botanical products (such as extracts of eggshell membranes).

Curcuma longa stands out from other products because [various studies have shown](#) that its active compound curcumin has the potential to reduce inflammation. This is a competitive advantage for *Curcuma longa* since European consumers want products with measurable benefits.

Substitute products for *Curcuma longa* used for immune support

For immune support, vitamins and minerals are the main synthetic food supplement substitutes for *Curcuma longa*. These products make up around half of the European food supplement market.

A wide range of natural products are marketed for immune support and overall wellbeing. These include:

- plant-derived vitamins or products with plant materials that are high in vitamins
- probiotics and prebiotics (which are often consumed as yoghurt or yoghurt drinks)
- fruit-based antioxidants (e.g. using blueberries, elderberries and açai).

Commonly used plants for immune support include the following.

- Echinacea (*Echinacea purpurea*)
- Ginseng (*Panax quinquefolius* and *P. ginseng*)
- Green tea (*Camellia sinensis*)
- Ginger (*Zingiber officinale*)

- Cat's claw (*Uncaria tomentosa*)
- Eleuthero (*Eleutherococcus senticosus*)

Other superfoods are also strong sources of product competition, especially if they have a healthy nutritional profile (such as high concentrations of vitamins) or high levels of antioxidant activity. These are often used to improve general health or immune support. Examples include the following.

- Moringa (*Moringa oleifera*)
- Baobab fruit powder (*Adansonia digitata*)
- Mulberries (*Morus spp.*)
- Spirulina (*Arthrospira plantensis*)

Tips:

- Build a marketing story for your *Curcuma longa* products. Show how they are different from competing products. You can focus on the content of curcumin in your roots or how *Curcuma longa* is traditionally used to support health.
- Do not adulterate your *Curcuma longa* products with synthetic curcumin.
- See our study on [competition on the European natural ingredients for health products market](#).
- See our [tips for doing business with European buyers](#) for natural ingredients for health products.
- Show your insights into developments within the competitive environment in your communication and promotional materials.
- Do a literature study on the potential of *Curcuma longa* in joint health and immune support. Use this in your promotion materials and product documentation.
- For other natural ingredients allowed for digestive health (such as gastrointestinal disorders) or joint health (pain and inflammation) check this [overview of herbal medicinal products for paediatric use](#) of the European Medicines Agency.
- See our studies on [immune support](#), [joint health](#) and [digestive health](#) for more information on sources of product competition.

Company competition

India is Europe's main supplier of *Curcuma longa*. Companies from this country will be your main competitors with regard to the raw material. They can offer products at a low price. However, European buyers indicate concerns regarding quality and quality consistency, including adulteration.

Other producing countries include the following.

- Pakistan
- China
- Haiti
- Jamaica
- Peru
- Taiwan
- Madagascar
- Thailand

Companies from China and India are the main developing country suppliers of extracts of *Curcuma longa*. If you produce an extract, they will be strong competitors.

Some Chinese and Indian companies have even patented ingredients based on *Curcuma longa* for the European and North American markets. It will be difficult to compete with these companies. You would need to invest a lot in research and development (R&D) to develop intellectual property rights of your product and to obtain patents.

One of the Indian companies which has developed a patented ingredient is [Arjuna Natural Extracts Ltd](#). This company produces a bioactive curcumin ingredient called BIOCURCUMIN® (BCM-95®). Another example is the [Sabinsa Corporation](#). This company, based in both India and the United States produces a patented ingredient based on *Curcuma longa*: [Curcumin C3 Complex®](#).

European processors are strong competitors for *Curcuma longa* extracts as well. According to industry sources, many European health product manufacturers prefer to buy extracts from European processors to reduce risks regarding product quality. Examples of these processors include [Flavex](#) and [Naturex](#).

European processors also develop ingredients based on *Curcuma longa* with an improved delivery system of curcumin. This means that higher amounts of curcumin are released in the human body, leading to a stronger and quicker effect. An example of this is [Meriva®](#) from Italy-based company Indena.

Tips:

- Are you producing *Curcuma longa* rhizomes with a high content of curcumin (over 3%)? Stress this in your product documentation. This can be a competitive advantage for you over other *Curcuma longa* producers.
- Ensure proper harvest, post-harvest and processing and proper documentation if you want to exploit opportunities to add value to your product.
- Ensure that you will have an adequate return on your investments for quality improvements and processing. Carry out improvements on quality according to your buyer's requirements (specifications) and explore what they are willing to pay for.
- If you decide to produce *Curcuma longa* extracts, build trust with your buyers. Ensure traceability of your product and be open about the quality and quantity you can deliver, and at what price. Also ensure that you only use solvents and preservatives according to buyer specifications.
- See our [tips for doing business with European buyers of health product](#) for more information.

To stand out in the European market you can also certify your company according to social and environmental sustainability standards. Although the total market is small, organic certification can offer opportunities for *Curcuma longa* producers. Certification options are different for food supplements and herbal medicinal products. Note the following.

- Food supplements: opportunities for certification increase if the product is positioned as a food-type product, rather than as a medicinal-type product. For example, *Curcuma longa* powder on the European market is often has organic certification.
- Herbal medicinal products may mention certifications on their labels. Sustainable certification will add value if you target a manufacturer that has a philosophy that calls for such certification, such as organic certification. Alternatively, this may also be the case if selling to a company that considers organic an additional measure of quality assurance.
- Fair trade certification can help indicate to your buyers that the production of your ingredient is generating rural income and does not harm local communities. This could in turn improve your buyer's image.

Tips:

- Always verify whether your European buyers are interested in certified ingredients.
- If they are not interested, you can still help manufacturers build their case by documenting and visualising your product and company's unique value proposition. Final manufacturers with a company image focused on ethical or environmental aspects can use this to market the end product in Europe.

6. Which channels can you use to put *Curcuma longa* on the European market for health products?

Market channels

Figure 3: Market channels for *Curcuma longa* for health

Source: ProFound

Importers and distributors are your most important entry point into the European *Curcuma longa* market (see Figure 2). They can trade in up to 500 natural ingredients, together with other ingredients, synthetic and otherwise. They focus on global sourcing, analysis and quality control, rectification, blending, product documentation and sales to processors and end-product manufacturers.

If you are a small, new exporter, you can work with an agent to represent you on the European market.

Production of further processed or standardised extracts takes place in the United States, Europe and in more developed sourcing countries such as India and China. It may be difficult to produce these further processed extracts yourself, because market entry barriers are a lot higher. See the section on competition for more information.

Tips:

- Benefit from the experience and knowledge of specialised European importers and agents instead of approaching manufacturers directly.
- To help you enter the market, consider working with an agent or representative with a good reputation. You can look for commercial agents on the website of [Internationally United Commercial Agents and Brokers \(IUCAB\)](#).
- See our studies on [market channels and segments for natural ingredients for health products and tips for finding buyers](#) for more information.
- Visit or participate in trade fairs to test whether the market is open to your product, to obtain market information and to find potential buyers. The most relevant trade fairs in Europe are [SANA](#), [Health Ingredients Europe](#), [Biofach](#) (for organic products) and [Vitafoods](#).

7. What are the end-market prices for *Curcuma longa*?

Prices for *Curcuma longa* strongly depend on the type of product being sold (dried roots/powder or extract) and its curcumin content.

[ITC Market Insider](#) has reported prices of \$1.85–1.91 (€1.63–1.69) per kilogram for *Curcuma longa* spice (food-grade powder) on the European market (early 2016). At the same time, the *Curcuma longa* roots of the Alleppey variety with 5% curcumin fetched \$3.31 (€2.92) per kilogram on the American market.

Organic rhizomes can obtain a higher price. For example, a European buyer put prices for these at around €4.35 per kilogram.

The price of *Curcuma longa* extracts depends on the concentration of curcumin and the how the extract is produced. Industry sources indicated a price of €150 per kilogram for dry *Curcuma longa* extract.

A [2012 study into the value chain of *Curcuma longa*](#) indicates that the market price of *Curcuma longa* increases

substantially with additional processing. The research is based on consumer products on the market in the United Kingdom. See the table below for more information.

Table 3: Indicative United Kingdom consumer market prices for *Curcuma longa* products, prices per kg

	Crude powder	Food-grade powder	Powder capsules	Pharmaceutical grade capsules (often sold as herbal medicinal product)	Capsules/tablets containing extract*	High-potency tablets
Indicative market prices (per kg)	€ 1.43	€ 17	€ 248	€ 285	€ 226	€ 768

Source: 'Value chains of herbal medicines-Research needs and key challenges in the context of ethnopharmacology' (2012).

* Source: Amazon.co.uk

Tips:

- Ensure that your price reflects the quality levels and delivery conditions.
- Monitor harvests in major production countries, particularly in India. This will help you to anticipate price developments for your *Curcuma longa*. You can request such information from importers or check the [Spices Board India](#) website.
- For more information on prices of dried rhizomes/powder of *Curcuma longa*, see the [ITC's Market Insider on Spices](#).

Please review our [market information disclaimer](#).